NORTON
SAINT-GOBAIN
IDEAL PRIME

Reshaping your world

THE IDEAL SOLUTION FOR INTERNAL DIAMETER GRINDING

- CUTTING EFFICIENCY
- WORKPIECE QUALITY
- INCREASED WHEEL LIFE
- FAST PROCESS

SAINT-GOBAIN

NORTON
SAINT-GOBAIN
IDEAL PRIME

The IDeal Solution for Internal Diameter Grinding

Where grinding efficiency, ultimate accuracy and reduced process costs are key, Norton proves to be the ideal partner. **Norton IDeal-Prime** utilises a new, nano-crystalline ceramic grain from Saint-Gobain, embedded in an optimised matrix of bond. Thanks to the micro-fracture properties of this new ceramic grain & retention capability of the bond, **Norton IDeal-Prime** delivers excellent grinding efficiency and significantly longer life, while ensuring outstanding part quality over time.

IDeal-Prime Advantages:

REDUCED CYCLE TIMES

Our self-sharpening grain technology increases Material Removal Rates and reduces the need for dressing, cutting down on overall cycle times and effective cost per part.

IMPROVED WHEEL LIFE

The new grain micro-structure allows longer, cooler cuts and more stable profiles and shapes. Lowering dress requirement, significantly improves the wheel life of IDeal-Prime without sacrificing work piece quality.

IMPROVED GEOMETRIC CONSISTENCY

The innovative grain technology creates a product with unparalleled sharpness and cutting efficiency that reduces spindle power requirements even at increased Material Removal Rates.
This means less mechanical stress and improved part geometry.

IMPROVED SURFACE FINISH

Norton IDeal-Prime utilizes latest bond technology and advances in manufacturing processes achieving unparalleled product consistency and thus stable surface finish over time.

REDUCED ENVIRONMENTAL IMPACT

From reduced carbon footprint in our production process and removal of artificial pore inducers, to longer product life reducing the number of abrasive tools consumed, choosing IDeal-Prime allows you to reduce environmental impact linked to your process.

IDeal-Prime Product Availability:

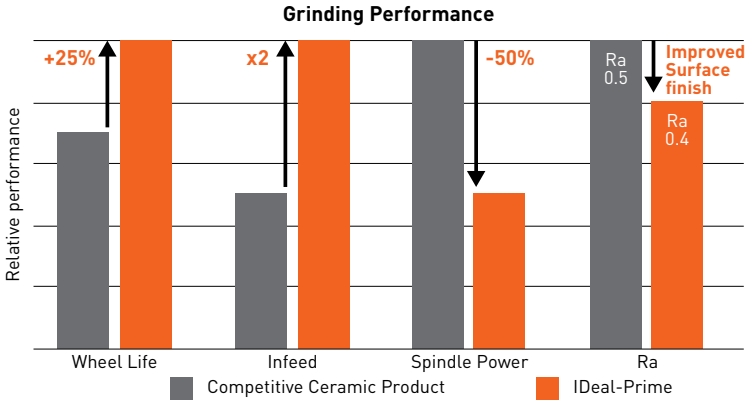
Abrasive Type	New Innovative Ceramic grain for extreme free cutting. With Option of blending with "partner grains" for combination of free cut and improved profile hold.
Grain Size (FEPA F)	**46** → **150** Coarse Grain for aggressive cutting action — Finer Grain for improved surface finish
Grade	**F** → **S** Softer wheel hardness for easier grain refresh and free cutting ability. — Harder grade wheel for less aggressive cutting and improved form hold and wheel life.
Structure	**5** → **13** Less open structure for improved form hold and wheel wear. — More open structure for higher MRR and heat sensitive parts.
Bonds	Latest Vitrified bonds for precision engineered grain holding.
Speed	80m/s max.

CASE STUDY 1

Application: ID plunge grinding, race
Part type / material: Outer bearing ring / 100Cr6 hard treated HRc 62
Part dimensions (mm): 65x50
Extra stock (mm): 0.4 on radius
Wheel dimensions (mm): 41x38x13
Specification: 3NQN120KVS3
Compared with: Competitive ceramic product
Coolant: Emulsion
Dressing: Roller

RESULTS:

Infeed:	x2
Dressing:	-30%
Ra:	0.4 µm with Q'=17mm²/s (0.4µm required)
Spindle power:	-50%

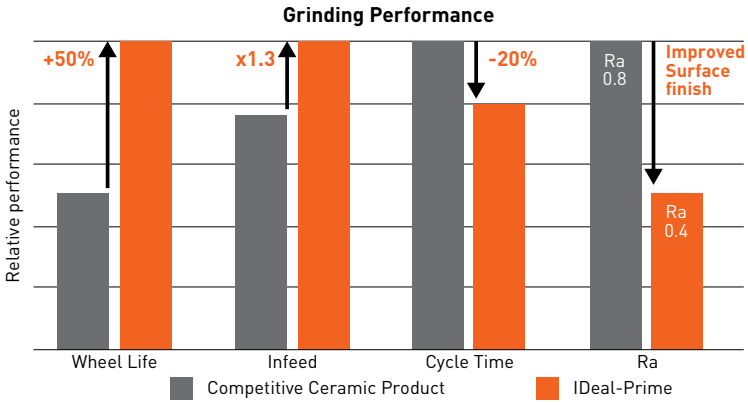


CASE STUDY 2

Application: ID grinding with oscillation (bore)
Part type / material: Inner bearing ring bore / 100Cr6 HRc 48
Part dimensions (mm): 65x50
Extra stock (mm): 0.4 on radius
Wheel dimensions (mm): 40x40x13
Specification: 3NQN100K12VS3P
Compared with: Competitive ceramic product
Coolant: Emulsion
Dressing: Single point

RESULTS:

Infeed:	x1.3
Dressing:	-50%, 0.4, 0.8
Ra:	0.4 µm (target was 0.8µm)
Cycle time:	-20%



A RANGE OF PROFILES AND SHAPES CAN BE MADE TO SUIT YOUR APPLICATION

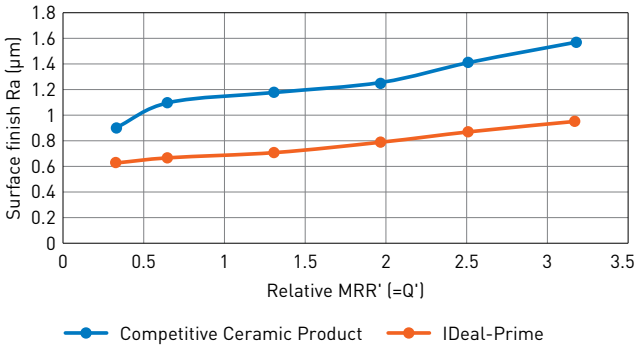
Grinding Test Benefits:

APPLICATION: INTERNAL DIAMETER GRINDING

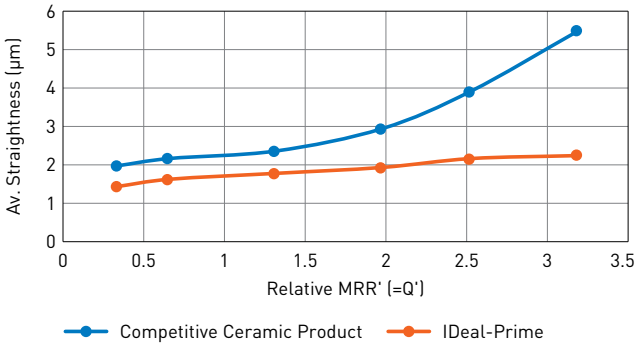
TEST METHOD 1 - WORKPIECE QUALITY:

- Increasing Material Removal Rate (MRR) in Internal Diameter grinding application
- Benchmarked against a competitive ceramic product
- Measured workpiece quality including:
  - Workpiece Surface Finish
  - Workpiece Straightness.

Surface finish Ra (µm) vs. relative MRR' (=Q')



Av. Straightness (µm) vs. relative MRR' (=Q')



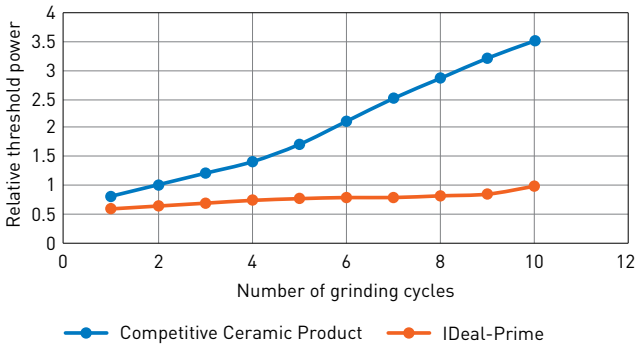
IMPROVED GEOMETRIC CONSISTENCY

Workpiece quality remains stable without dressing due to improved shape hold of product.

TEST METHOD 2 - THRESHOLD POWER:

- Performing repeated grinding cycles without dressing in between cycles
- Benchmarked against a competitive ceramic product
- Measured grinding parameter, Threshold Power (Minimum power required for grain to start cutting).

Threshold power vs. number of grinding cycles.



LOWER THRESHOLD POWER THAN THE COMPETITION

Threshold power does not increase regardless of the number of cycles thanks to and easier and more stable cut

SAINT-GOBAIN

Saint-Gobain Abrasifs
European Headquarters
Rue de l'Ambassadeur - B.P.8
78 702 Conflans Cedex
France

Tel: +33 (0)1 34 90 40 00
Fax: +33 (0)1 39 19 89 56

www.nortonabrasives.com
www.youtube.com/NortonAbrasivesEMEA

Form # 3757

SEAM
Sustainable European Abrasive Manufacturers